

Serial No. 10/775,496
Amendment dated February 6, 2006
Reply to Office Action November 7, 2005

Amendment to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. & 2. (cancelled)

3. (currently amended) A concrete of specified compressive strength f_c in the range of 2000 to about 5000 psi and modulus of rupture (MR) ~~up to 5,000 psi and~~ more than 550 750 psi and ~~respectively,~~ wherein suitable proportions of cement, sand as a fine aggregate and water are included depending upon requirements, characterized in that the coarse aggregate is small grains crushed limestone finer than 9.5 mm. of grading intermediate between the coarse and fine aggregates in the standard of ASTM C125 of which the amount of said coarse aggregate finer than 4.75 mm is close to, but not exceeding, two-thirds of the total weight of aggregate, and less than that of the largest size of fine aggregate number 9 according to ASTM C33.

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4. (currently amended) The concrete of claim 3 wherein said coarse aggregate is defined as enriched limestone waste and is a processed by-product of the manufacture of crushed limestone of regular sizes, said process including washing and sizing this by-product, the physical properties of this coarse aggregate being in accordance with requirements of ASTM C33.

5. (cancelled)

6. (cancelled)

7. (currently amended) The concrete of claim 3 wherein ~~said concrete forms a subbase or lower layer of a composite pavement and~~ the amount of said coarse aggregate ~~in the aggregate bin of a concrete plant~~ finer than 2.36 mm. (Sieve No. 8) according to ASTM C33 does not exceed about 10% of the total weight of aggregate.

8. (currently amended) The concrete of claim 7 wherein the amount of said coarse aggregate ~~in the aggregate bin of a concrete plant~~ finer than 1.18 mm. (Sieve No. 16) does not exceed about 7% of the total weight of aggregate.

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9. (currently amended) The concrete of claim 7 wherein the amount of coarse aggregate ~~in the aggregate bin of a concrete plant~~ finer than 300 μ m (Sieve No. 50) in the aggregate bin at a concrete plant ready for mixing does not exceed about 3.0% of the total weight of aggregate.

10. (currently amended) The concrete of claim 4 with the coarse aggregate defined as enriched limestone waste wherein the compressive strength of said concrete is higher by at least 10% than that of concrete of the same consumption of cement with crushed limestone as a coarse aggregate of grading corresponding to the least size of coarse aggregate No. 89 to the largest size of fine aggregate No. 9 according to ASTM C33, respectively.

11. (currently amended) The concrete of claim 3 ~~[[4]]~~ with the coarse aggregate defined as enriched limestone waste wherein the compressive strength of said concrete is substantially as high or higher than that of concrete of the same consumption of cement and twice as high consumption of admixture with crushed granite of regular sizes as a coarse aggregate, while the flexural strength of this concrete is higher than that for concrete of the same consumption of cement with crushed granite of regular sizes as a coarse aggregate.

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12. (currently amended) The concrete of claim 3 wherein concrete mix design is determined by the value of 28-day modulus of rupture equal to the mean value of 28-day flexural strength according to Portland Cement Association Engineering Bulletin EB 109P, the mean value of flexural strength being estimated as ~~9.42~~ $9.42\sqrt{f_{cr}'}$ where f_{cr}' is the mean value of 28-day compressive strength defined according to American Building Code ACI 318 as required average 28-day compressive strength and equal to $f_{cr}' + 1.34s$ where f_{cr}' and s are specified compressive strength and standard deviation of this strength, respectively.

13. (original) The concrete of claim 12 wherein mix design corresponding to 28-day values of modulus of rupture (MR) equal to 550, 600, 650, 700, and 750 psi can be carried out according to the values corresponding to the 28-day values of specified compressive strength f_{cr}' equal to 3,000, 3,500, 4,000, 4,500, and 5,000 psi, respectively.

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14. (withdrawn) The composite concrete pavement comprising:

a surface course of concrete and a lower layer wherein the coarse aggregate is small grains crushed limestone finer than 9.5 mm. of grading intermediate between the coarse and fine aggregates in the standard of ASTM C125;

and wherein the amount of said aggregate finer than 4.75 mm. does not exceed two-thirds of the total weight of said aggregate;

the amount of said aggregate finer than 2.36 mm. (Sieve No. 8) does not exceed about 10% of the total weight of said aggregate;

the amount of coarse aggregate finer than 1.18 mm. (Sieve No. 16) does not exceed about 7% of the total weight of said aggregate; and

the amount of coarse aggregate finer than 300 μ m (Sieve No. 50) in the aggregate bin of the concrete plan does not exceed about 3% of the total weight of said aggregate.

15. (new) The concrete of claim 3 wherein the amount of said aggregate finer than 4.75 mm. does not exceed two-thirds of the total weight of said aggregate;

the amount of said aggregate finer than 2.36 mm. (Sieve No. 8) does not exceed about 10% of the total weight of said aggregate;

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the amount of coarse aggregate finer than 1.18 mm. (Sieve No. 16) does not exceed about 7% of the total weight of said aggregate; and

the amount of coarse aggregate finer than 300 μ m (Sieve No. 50) in the aggregate bin of the concrete plant does not exceed about 3% of the total weight of said aggregate.